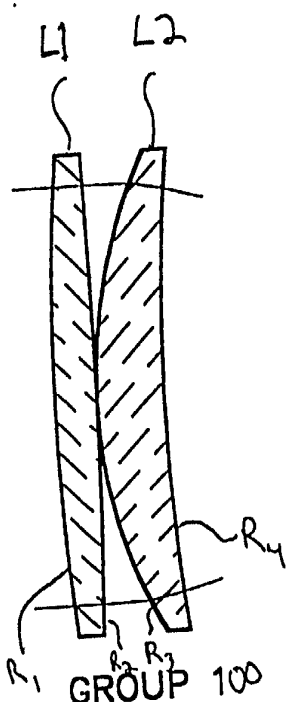
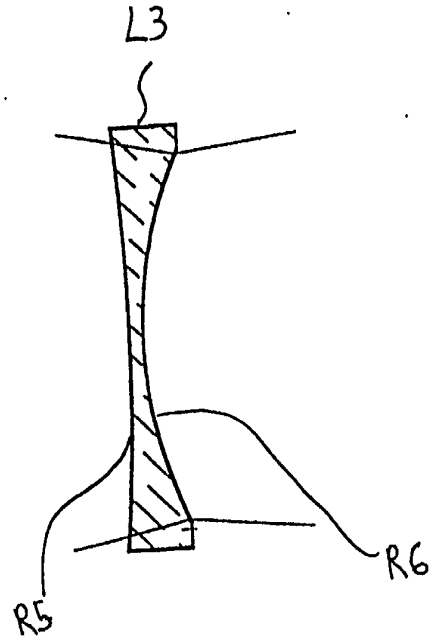
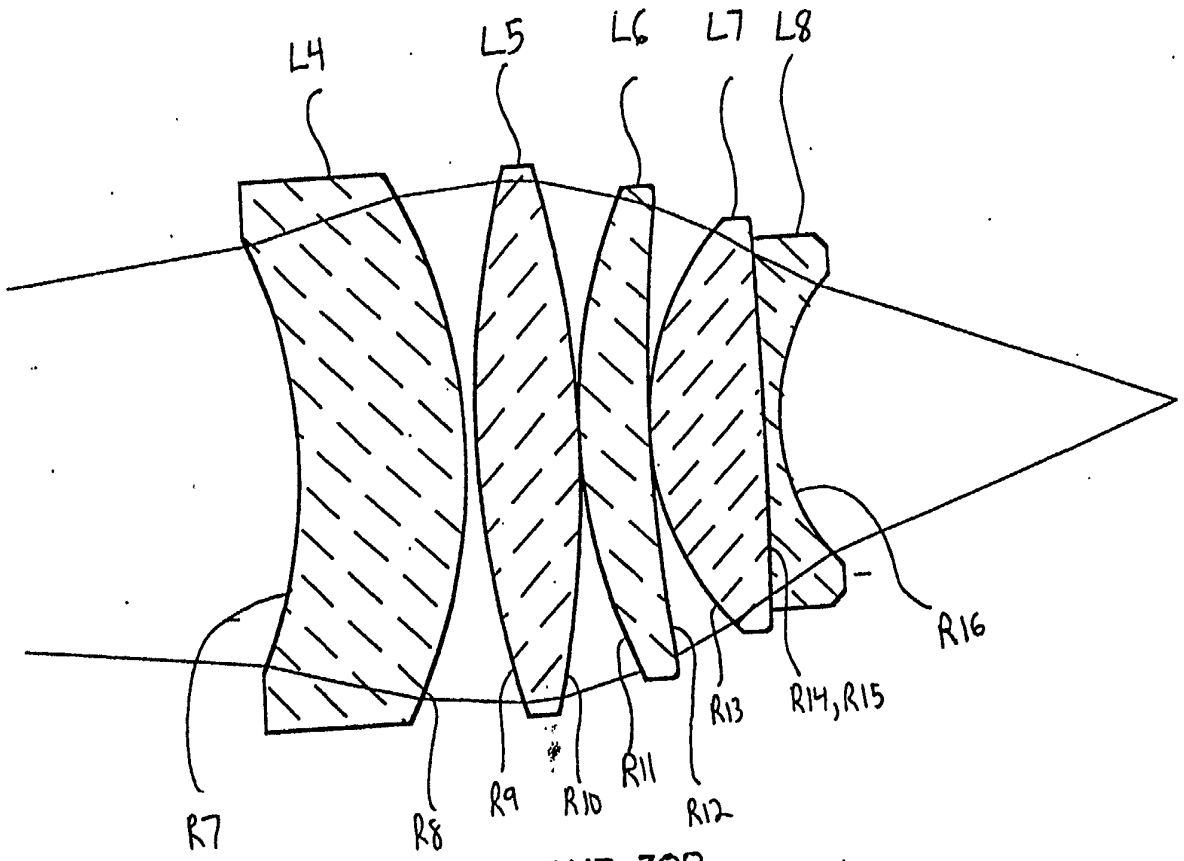


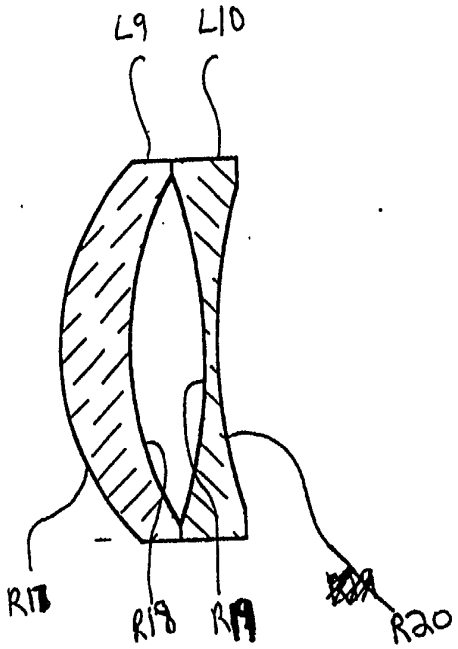
GROUP 100
FIG. 1



GROUP 200
FIG. 2



GROUP 300
FIG. 3



GROUP 400
FIG. 4

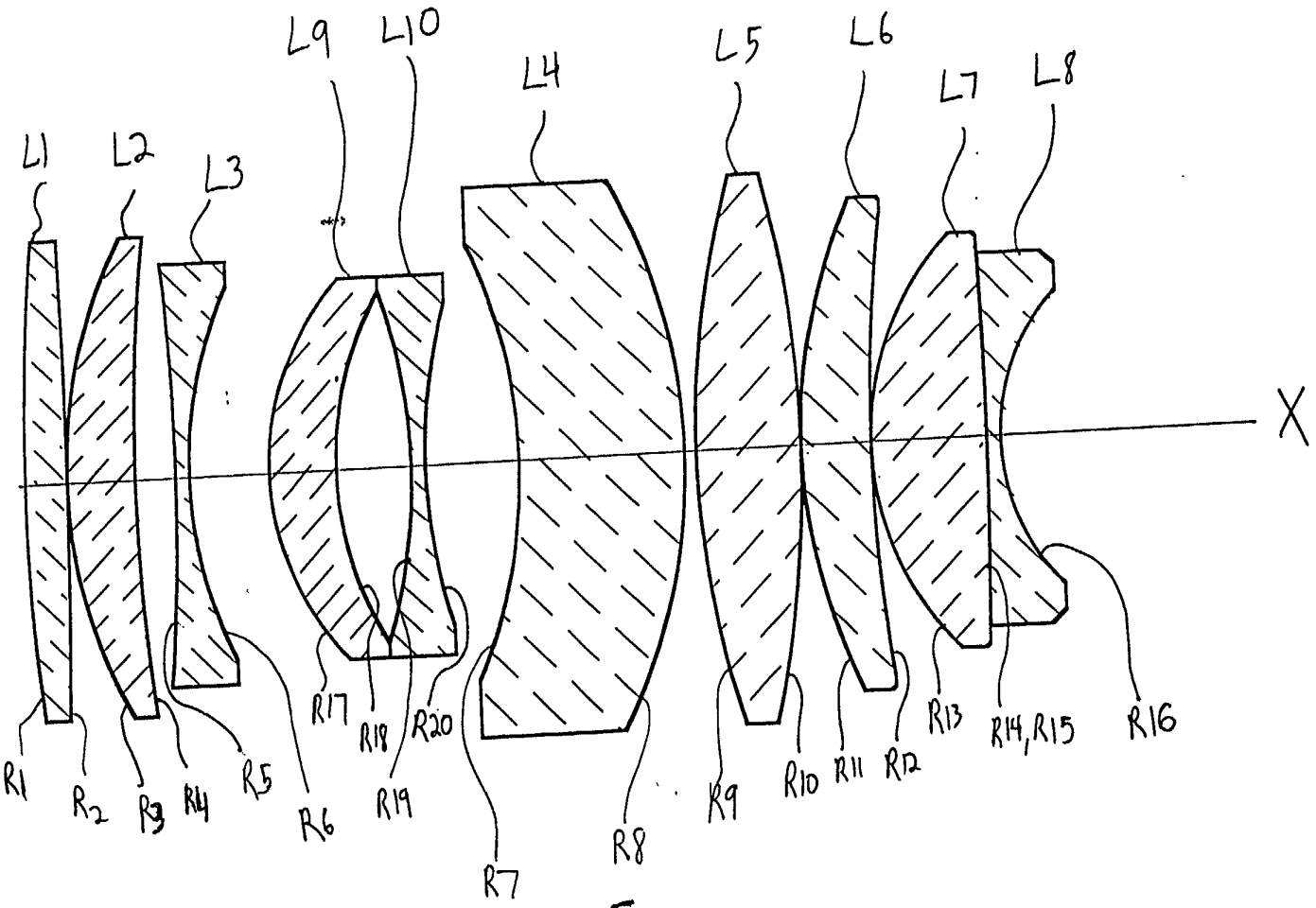

L1
L2
L3
L9
L10
L4
L5
L6
L7
L8
X
R1
R2
R3
R4
R5
R6
R17
R18
R19
R20
R7
R8
R9
R10
R11
R12
R13
R14,R15
R16

FIG. 5

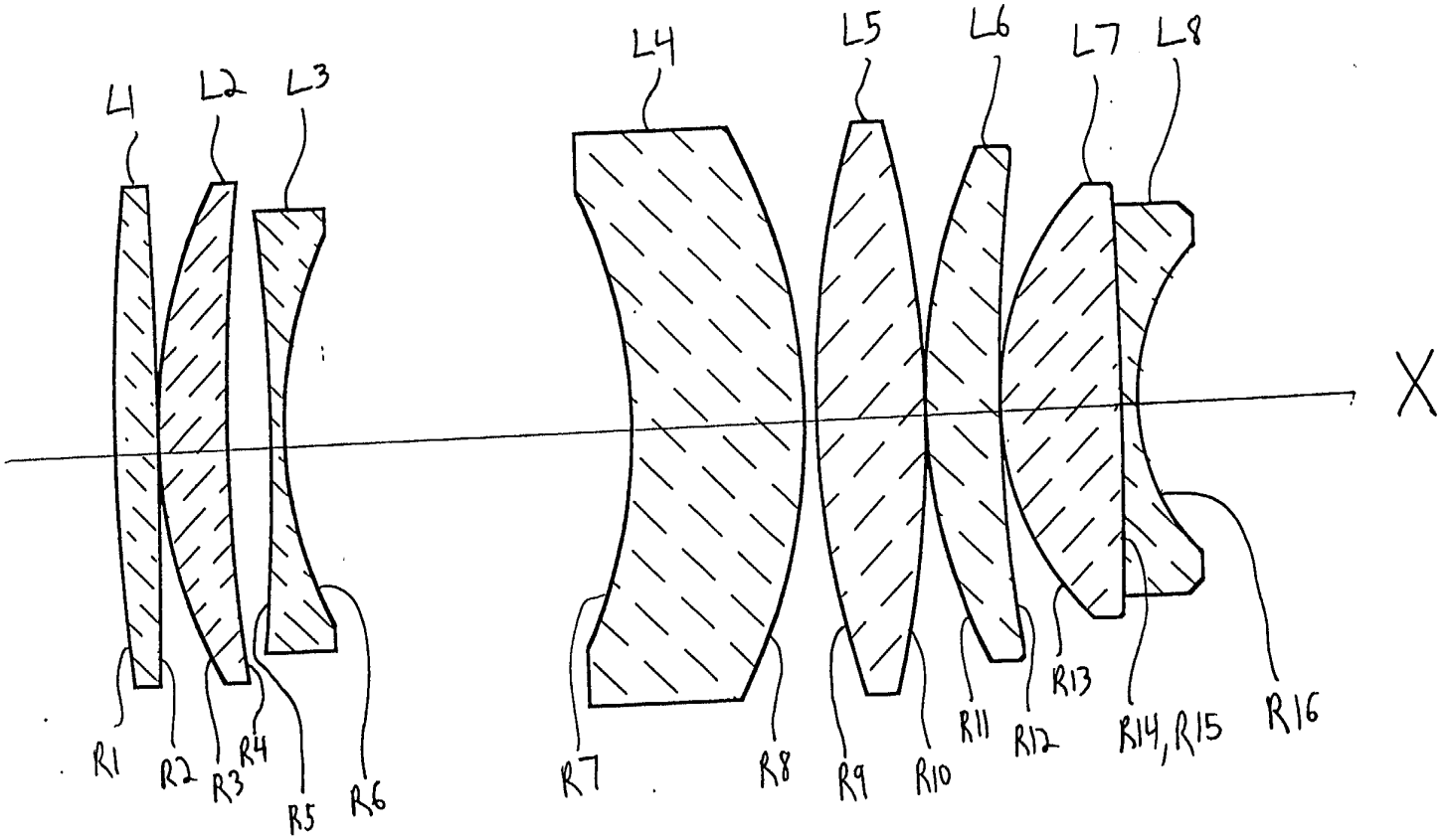
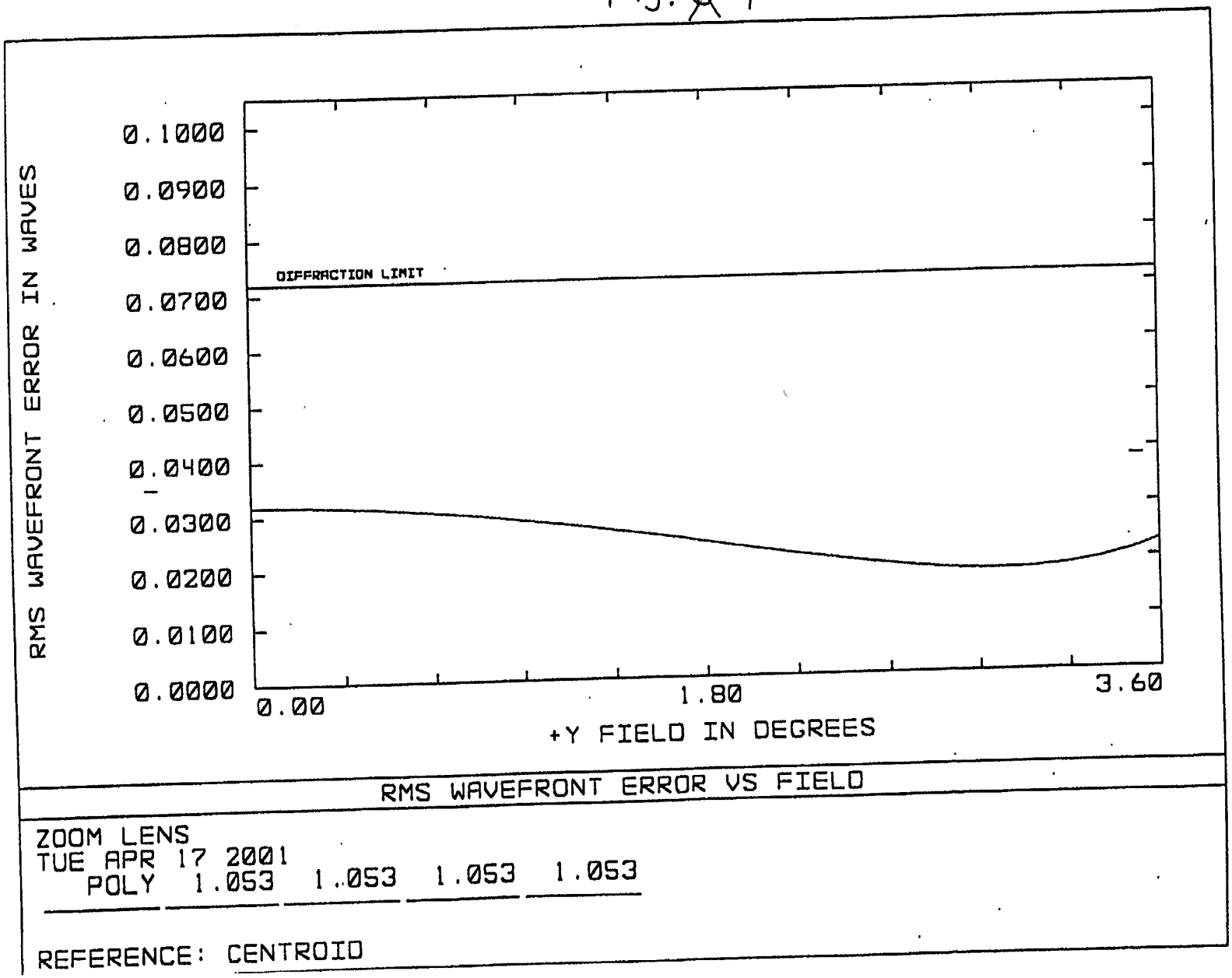


FIG. 6

Fig. 7



Prescription Data

Focal length (in air, in image space) = 87.50629 mm
Image Space F Number = 1.483157
Paraxial Working F Number = 1.483157
Working F Number = 1.482861
Image Space Numerical Aperture = 0.3194542
Maximum scan field angle = 3.6°

Lens	Surface	r (mm)	t1 (mm)	t2 (mm)	N	V	d (mm)
L1	1	310.254	6.25 ± .05		1.62041 ± .0002	60.320000 ± .01	63.91218
	2	-865.592		.05062567 +.019671 or -.05			63.93718
L2	3	71.8605 ± .05	9.75 ± .05		1.78831 ± .0002	47.470001 ± .01	63.69135
	4	278.115		8.259974 ± .05			61.57791
L3	5	-300.853	2 +.0087624 or -.042375		1.66446 ± .00019711	35.830002 ± .01	58.22313
	6	58.7808		46.74003 ± .05			55.70195
L4	7	-71.8352	24.36137 +.010265 or -.0020328		1.78831 ± .0002	47.470001 ± .01	63.45201
	8	-81.2947		1.643273 +.0085467 or -.040842			75.65749
L5	9	130.107	15.4 +.0052462 or -.024521		1.62041 ± 8.5178e-005	60.320000 ± .01	78.3121
	10	-156.501		.05055396 +.0063359 or -.028465			77.54722

In the above table:
r is the radius of curvature of an individual lens surface
t1 is the lens thickness; t2 is the aerial lens-to-lens distance
N is the refractive index of an individual lens
V is the abbe number of the lens glass
d is the diameter of an individual lens surface

FIG. 8(a)

Prescription Data (continued)

Lens	Surface	r (mm)	t1 (mm)	t2 (mm)	N	V	d (mm)
L6	11	80.9076	10.25 +.014557 or -.05		1.66446 ± .0002	35.830002 ± .01	71.42459
	12	235.496		.03491001 +.014978 or -.0034247			67.70871
L7	13	41.6664	16.8 +.037 or -.011899		1.62041 ± .0001632	60.320000 ± .01	59.38197
	14	-743.185	0.03		1.51680 ± .00014312	64.169998 ± .01	51.45308
L8	15	-743.506	2.200065 +.010353 or -.045943		1.78472 ± .0002	25.760000 ± .01	51.40862
	16	29.5207		44 ± .05			40.61657

In the above table:
r is the radius of curvature of an individual lens surface
t1 is the lens thickness; t2 is the aerial lens-to-lens distance
N is the refractive index of an individual lens
V is the abbe number of the lens glass
d is the diameter of an individual lens surface

FIG. 8(b)

Prescription Data

Focal length (in air, in image space) = 235.6921 mm
Image Space F Number = 39.28202
Paraxial Working F Number = 39.28202
Working F Number = 39.32507
Image Space Numerical Aperture = 0.01272744
Maximum scan field angle = 3.5°

Lens	Surface	r (mm)	t (mm)	d (mm)
L9	17	34.735	10.1	48.30336
	18	45.15	11.0025	43.98864
L10	19	-72.12	2	42.40368
	20	60.17	14	43.40368

In the above table:
r is the radius of curvature of an individual lens surface
t is the lens thickness
d is the diameter of an individual lens surface

FIG. 9

Tolerances

Lens	Surface	radius - Power (fringes)	radius- Irregularity (waves)	surface decenter x (mm)	surface decenter y (mm)	surface TIR x (mm)	surface TIR y (mm)
L1	1	4	0.2	± .05	± .05	.005	.005
	2	4	0.2	± .05	± .05	.005	.005
L2	3	4	0.2	± .0071955	± .0071936	.005	.005
	4	4	0.2	± .028266	± .028274	.005	.005
L3	5	3.5747	0.2	± .013228	± .013228	.0025716	.0025716
	6	3.6417	0.2	± .029432	± .029432	.0028015	.0028015
L4	7	3.865	0.2	± .037273	± .037273	.0033586	.0033586
	8	3.2172	0.2	± .0030108	± .0030108	.0028606	.0028606
L5	9	4	0.2	± .0058993	± .0058993	.0036413	.003642
	10	2.9502	0.2	± .0042619	± .0042624	.0021763	.0021765
L6	11	4	0.2	± .011826	± .011826	.005	.005
	12	4	0.2	± .014127	± .014128	.0041844	.0041846
L7	13	4	0.2	± .0026876	± .0026871	.0039213	.0039206
	14	4	0.2	± .05	± .05	.005	.005
L8	15	4	0.2	± .003153	± .0031524	.0044445	.0044437
	16	4	0.2	± .05	± .05	.005	.005

In the above table:
TIR is the total indicator runout of a surface

FIG. 10(a)

Tolerances

Lens	element decenter x (mm)	element decenter y (mm)	element tilt x (degrees)	element tilt y (degrees)
L1	± .05	± .05	± .019337	± .019333
L2	± .0080018	± .0079994	± .0057032	± .0057029
L3	± .0024825	± .0024825	± .0041356	± .004135
L4	± .014185	± .014186	± .029466	± .029466
L5	± .0024791	± .0024794	± .0049561	± .0049558
L6	± .013323	± .013323	± .003873	± .0038727
L7	± .0097664	± .0097667	± .0071825	± .0071814
L8	± .05	± .05	± .05	± .05

FIG. 10(b)